THE RATIONALE FOR FEDERAL FUNDING OF PILOT ELECTRONIC MARKETS IN U.S. AGRICULTURE[1/]

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There currently is considerable interest in the potential to revitalize the concept of organized, open markets for agricultural products through the application of modern communications and electronic data handling and computer systems, or the so-called electronic commodity markets. I have been involved in this quest for greater understanding of the potential benefits, and disadvantages, of the use of electronic marketing systems for agricultural products for practically all of my relatively young professional career.

While on assignment to the USDA's Agricultural Marketing Service last year, I was able to catalyze interest in that agency to the point of providing financial assistance for the further development of a few carefully chosen computerized marketing systems on an experimental basis. That experimental initiative is now underway, and it should add significantly to our collective knowledge of the feasibility of using computerized, open marketing systems in agriculture and of their potentials and pitfalls.

This Federal initiative means that interest in the potentials for electronic marketing in agriculture is now a matter of public policy. To help understand this growing interest, it is useful to briefly revisit some of the changes that have occurred in the organization and structure

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of U.S. agriculture and the problems these changes have brought to the marketplace.

One of the most notable changes in recent years has been the decline in the relative importance of open, organized markets for agricultural products. This has been associated with a concomitant increase in the use of contracts, vertical integration, and other private treaties directly negotiated between buyers and sellers. The explanation for this trend rests with the increasing specialization of agricultural enterprises, with which we are all familiar. But, specialization is just one side of the coin; the other side is interdependence. That is, as people and production activities become more specialized, they become more interdependent. An oft-used example is illustrative. No longer does the farmer raise his own source of power (horses), fuel (oats) or feed. Now he is dependent upon a tractor supplier, a petroleum distributor and a feed formulator. Each of these, in turn, is dependent upon others, such as steel mills, refiners, and soybean crushers. Examples can be extended ad nauseum.

The point. Greater specialization results in more interdependencies, which in turn increases the risk associated with market failures such as foreclosure or lack of adequate supply. To minimize these risks, many businessmen, farmers and others in agriculture not withstanding, make some form of direct arrangement with their suppliers and/or those whom they supply. This reduces their dependency upon the vagrancies of the marketplace.

In the past 15 to 20 years, the use of organized markets has declined appreciably for virtually every category of agricultural products. Vertical and contractual integration has now displaced about 25 percent of all potential market transactions for farm-produced products, although this varies widely among different products--from about 10 percent for

hogs and food grains to over 90 percent for broilers, milk and sugar crops. Furthermore, of that which is marketed in some manner, a steadily increasing share is traded by private treaty rather than through an organized market: organized marketings of slaughter cattle accounted for just 20 percent of total production in 1974, compared to 60 percent in 1960. Private treaties now account for over 30 percent of all feeder cattle transactions and more than 70 percent of all slaughter hog production. And by 1970, organized markets for eggs in the U.S. virtually disappeared, with all of the nonintegrated egg production then subjected to private agreement.

In addition to gaining some protection against the risks associated with market uncertainty, other benefits of private agreement and other contracts include greater efficiency in product movement and improved communications between seller and buyer regarding quality and quantity requirements. However, there is increasing concern over the problems associated with the corollary decline in use of organized markets.

These problems stem primarily from impacts upon competition in the market place. In comparison with viable organized markets, competition is often constrained in private treaty situations. There are several reasons. Among the most important are inaccurate price establishment procedures, variability in non-price terms of exchange, and manipulative trading practices. Let's briefly visit each.

Price information becomes difficult to obtain and less useful for price establishment purposes as open market-trading declines. When organized public markets operate with relatively high volumes, the resulting prices are generally accurate reflections of marketwide supply and demand conditions. That is, such prices tend to be reasonably accurate measures of market value. These prices are also readily

observable. Peripheral direct trades made on the basis of those prices have little marketwide consequence.

But, as contracting, integration, and direct trading expand, organized markets tend to become residual markets which cater primarily to marginal quantitites which do not move by private agreement or contract due to factors such as burdensome supplies or low product quality. As volume declines, the number of traders active on organized markets also declines, often to the point where at least tacit collusion is observable. The resulting prices are dubious indicators of market value.

Also, the collection of useful price information from private agreements is exceedingly difficult, due to the large number of points where such transactions occur, selective or even dishonest reporting, and variability in non-price terms of trade. Whereas in organized markets the reported prices are based upon all trades, reported prices from private transactions are by necessity a selective sample and are not necessarily representative of the majority of sales. Further, non-price terms such as transportation and handling, credit provision, liability for damage, risk-sharing, and so on vary considerably in private treaties, making prices in various transactions not directly comparable.

The potential for market manipulation also expands. Selective or inaccurate reporting (or no reporting) occurs more than occasionally. If, for example, a large buyer knows that subsequent purchases will be based upon the prices he reports on current transactions, the incentive to report on only relatively low-priced transactions is apparent. While hard evidence of such manipulation is difficult to obtain, information subpoenaed by the Committee on Small Business of the U.S. House of Representatives in 1977 and 1978 revealed that fewer

than 20 percent of the prices reported on the "Yellow Sheet," which is the pricing bible of the livestock-meat industry, could be substantiated with actual records of the transactions reported.

Concern over these competition and pricing problems has prompted much of the current interest in electronic trading. By electronic marketing, I am referring primarily to systems which utilize modern electronic communications and data handling facilities, such as teletype networks and digital computers, to facilitate simultaneous price negotiations among numerous buyers and sellers.

Conceptually, electronic markets offer a means of maintaining the benefits of efficiency and improved buyer-seller coordination associated with direct agreements, while reducing the barriers to competitive pricing and open trading. The USDA initiative will help further test this concept. To date, four projects, have been funded: two to develop totally new systems--one for slaughter hogs and the other for feeder cattle, and two to encourage expanded trading on existing systems--the Virginia-based slaughter cattle teleauction and the egg industry's computerized public trading floor operated by the Egg Clearinghouse, Incorporated (ECI).

The egg industry, with its ECI system, has been a pioneer in the use of modern technology for organized, public trading. This industry is being closely watched by all segments of agriculture. Is computerized electronic trading viable? Federal funding will help further extend its potential use in egg marketing. But the bottom line is, will the industry give it a fair trial?